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Abstract: In this chapter, I examine the use of mercury with a special focus on its application as an ingredient in antisyphilitic medicines and therapies in a selection of medieval Persian scientific texts that represent either the earliest or the most influential works of their genre. Works examined include the earliest Persian pharmacological work, written by Abū Manṣūr Muwaffaq between 965 and 975 CE, which mentions mercury as a medicine against skin diseases and "killed mercury" (*zībaq-i kušta*)[1] as a poison; a general work on medicine written by Bahāʾ ad-Dawla Rāzī in 1501–2 CE, in which syphilis is described for the first time in Asia; a chapter from the *Ǧāmiʿ al-fawāʾid* (c.1511 CE) by Yūsufī, the earliest Persian work in which mercury plays an unmistakenly dominant role in the treatment of syphilis; and finally, the first Persian monograph on syphilis, written by Imād al-Dīn Maḥmūd Shīrāzī in the mid-sixteenth century, which lists recipes the author claims are derived from Chinese and European sources. This article will furthermore provide the first complete translation into a European language of Yūsufi's chapter on syphilis in the *Ǧāmiʿ al-fawāʾid*, together with an edition of the Persian text.

Keywords: syphilis, Iran, mercury, Persian medicine, Yūsufī *Ǧāmiʿ al-fawāʾid*

1 Persian as a scientific language

In antiquity, Iranian languages were spoken within a wide area reaching from the Persian Gulf in the south to Inner Asia in the north. In the course of time, the drift of Turkic speaking tribes from east and Slavonic speaking peoples from the north pushed back Iranian populations to a reduced territory which roughly corresponds to the situation of today.

1 Since there is no generally accepted transliteration of Persian, the system of the Swiss library network IDS is used, which is based on the ISO standard. Vowels are transliterated with their premodern values ā, ī, ū, a, i, u (without considering *mağhūl* vowels ē and ō); in modern pronounciation they are/a/,/i/,/u/,/a/,/e/,/o/respectively.

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In late antiquity, the southern part of the Iranian region formed a political unit under the rule of the Sassanian Dynasty. In this period, there existed a rich secular literature in middle Persian on science and medicine. However, only those works which formed part of the religious corpus of Zoroastrism survived the breakdown of the Sassanian empire in the seventh century. Within a few decades, Arab troups invaded the entire territory of Iranian speaking peoples, including parts of Central Asia.

After the Abbasid revolution, the centre of the Islamic caliphate moved from Damascus to Baghdad in the East. In this time, a renaissance of the sciences took place and Arabic became the dominating scientific language. Ancient Iranian writing culture survived mainly in the remaining Zoroastian communities, while conversion to Islam progressed faster in the Iranian territory than in other parts of the caliphate. Arabic language and writing became the cultural hallmark of the early adopters of Islam who formed the new elite. However, in the ninth century, the political unity of the caliphate broke apart. Khurasan, Afghanistan and parts of Central Asia formed a new independent political unit under the rule of the Samanid dynasty. Under the new political conditions, a revival of Persian as a national language was promoted by the Samanid emperors. The new Persian literature that developed at this time was written down in the Arabic script system. The earliest works of this new literature included the Persian epic *Šāhnāma* and lyrical writings, soon followed by prose works on secular subjects. One of the earliest works of this genre was a pharmacological lexicon, written by Muwaffaq Ibn ʿAlī al-Harawī. Dedicated to the Samanid ruler Manṣūr I, presumably between 965 and 975 CE,[2] this work contains an entry for mercury: *zībaq*.[3] In classical Arabic literature, mercury was called *ziʾbaq*, which is derived from the Persian *zībaq*.[4] The same term is used to translate the Greek *hydrargyron* in Arabic translations of Greek works on pharmacology.[5] This indicates that mercury was introduced from the Iranian world. However, in Pahlavi, Sogdian and Khwarezmian sources there is no reference to mercury.[6]

In Muwaffaq's pharmacological work *al-Abniya ʿan ḥaqāʾiq al-adwiya* ("Buildings based on the facts of medicines") many Greek sources are used, but preference is given to Sanskrit works, since the author had made a journey to India and admired it because of its richness of medical plants.[7] The book is

2 Ullmann 1970: 266–267; Fonahn 1910: 80–81.
3 Afšār/Fragner 2009 : 226.
4 Ullmann 2004.
5 Ullmann 2002: 697; Käs 2010 : 692.
6 MacKenzie 1971; Gharib 2004; Benzing 1983.
7 Storey/Blois 1927–1997, vol. 2: 199.

arranged alphabetically by the Arabic names of drugs. As mentioned, mercury is found under the name *zībaq*.[8] Muwaffaq prescribes it in its pure (presumably liquid metallic) form as a poison against lice and nits, and recommends mixing it with other drugs against scabies:[9]

> *Mercury*: Mercury kills nits and lice. If one mixes it fully with ointments for scabies, it is good. If one uses birthwort[10] for scabies with it, it is better against itching.

In the section on aconite (*biš*), Muwaffaq digresses on poisons in general and describes a group of hot and sharp poisons, which cause heat, burning and pain in the intestinal tract accompanied by perspiration. Next to arsenic and a composition called *sukk*, he also mentions "killed mercury" (*zībaq-i kušta*).[11] It is significant that Muwaffaq did not use the Arabic name *ziʾbaq maqtūl*, but the Persian expression *zībaq-i kušta*. This implies that he knew this substance from an Iranian tradition, rather than from an Arabic one. However, no instructions on its preparation are given. Therefore, we can only guess that mercury was "killed" by a procedure which suppressed its liquid character. Possibly a sublimate is meant. Mercury is mentioned only very rarely in the work of Muwaffaq and there is no other passage that explains how *zībaq-i kušta* is produced. "Killed mercury" is clearly defined as toxic in internal application. However, pure mercury is recommended for external use.

2 Production of mercury in Iran

In Iran, mercury was available in great quantities.[12] There were mines in the mountains of Istakhr in the province of Fars in South-West Iran,[13] in Bamyan in Afghanistan and in the Ferghana valley in Central Asia.[14] The last location is referred to in the earliest Persian work on geography, the *Ḥudūd al-ʿālam* ("Limits of the earth"), written in 982. The work mentions the mining of gold, silver, copper, and lead, and also the production of mercury. The name for

8 Afšār/Fragner 2009: 226–227.

9 *zībaq: zībaq rišk wa šipiš bi-kušad; wa čun bā ṭilā-hā-yi kar bayā mīzand nīk būd; wa čūn zarīvand dar ān bā ū ba-kār barand ḫāriš rā bihtar būd.*

10 The form *zarīvand* is unusual, common is the form *zarāvand*, see Steingass 1892: 613 "*zarāvand*, Aristolochy, birthwort"; Dihḫudā 1946–1975, fsc. 161: 325.

11 Afšār/Fragner 2009: 98·

12 Lippmann 1919–1954: 412.

13 Kremer 1875–1877: 303.

14 Kremer 1875–1877: 329.

mercury is not the traditonal *zībaq* but *sīmāb*, literally "silver-water".[15] There can hardly be any doubt that the place of this mercury mine is Khaidarkan in modern Kyrgyzstan. This mine still exists today and is the last functional mine that produces mercury for the world market.[16]

The distribution of mercury was managed through the use of special jugs similar to the sphero-conical vessels used for fire-grenades in warfare.[17] In an illustration in a manuscript of the *Iḫtiyārāt-i badīʿī* ("Wonderful choices", written 1541) such jugs are depicted in a section on mercury (see an example of such a jug in Figure 1).[18] Apparently, some remains of mercury have been found in such jugs at different archaeological sites of the Middle East and Russia.[19] A major part of the mercury on the market would have been used for the amalgamation method in gold mines.[20] The medical use of mercury probably played a minor role in the mercury trade.

3 Classical Persian works on medicine

Muwaffaq's *Kitāb al-Abniya* ("Book of medicines") was somewhat of an exception within the medical literature in its epoch. In Iran, medical handbooks were written in Arabic, independent from the native tongue of their authors. Ibn Sīnā's Arabic *Qānūn* was not translated into Persian until the sixteenth century.[21] The first prominent medical author who wrote his works in Persian was Ismāʿīl al-Ǧurǧānī, who served at the court of the Khwarazm-Shah from 1110 CE until his death in 1136. He wrote the *Ḏaḫīra-i Ḫwārazm-Šāhī* ("Treasure of the Khwarazm-Shah"), a thesaurus of medicine that became the standard Persian text-book on the subject for many centuries. It is preserved in numerous manuscripts and seems to have been the seminal work which inspired subsequent scholars to write comprehensive compendia in Persian.[22] The work does not contain a separate chapter on mercury. However, mercury is occasionally

15 Sutūda 1962: 112; Minorsky 1937: 116.
16 http://www.grida.no/files/publications/MercuryReport_scr.pdf (02/28/2014)
17 Ettinghausen 1965: 219–222.
18 Ettinghausen 1965: 222 and Plate XLVI, A.
19 See Ettinghausen 1965: 219–222 on the use of mercury for the amalgamation method in gold mines.
20 Al-Hassan/Hill 1986: 246.
21 Storey/Blois 1927–1997, vol. 2: 201.
22 Storey/Blois 1927–1997, vol. 2: 207–209.

Figure 1: Sphero-conical vessel, 13th/14th c. CE (?), University of Zurich, Institute of Asian and Oriental Studies.

mentioned in the context of various therapies. For example, in a chapter on lice, the following prescription is given:[23]

> Description of another medicine: One should beat (*bi-kūband*) mustard (*ḫardal*) and sneezewort (*kunduš*) soft (*narm*) with a little vinegar (*sirka*) and add killed mercury (*sīmab-i kufta*). This makes a medicine and an ointment.

Further, more elaborate mention of mercury is found in a work on materia medica by Zayn ad-Dīn ʿAlī al-Anṣārī, the *Iḫtiyārāt-i badīʿī*. Dedicated to a

23 Sīrğānī 1976: 623, l. 4–5.

princess, this work was completed in 1368 and was distributed in many copies.[24] In its first part, it contains an alphabetical lexicon of simple drugs. The entry for mercury is much longer than the entry in the *Kitāb al-Abniya*.[25] The lexicon gives both the traditional term *zībaq* for mercury as well as the Persian name *sīmāb*, literally "silver-water", the term already used in the *Ḥudūd al-ʿālam*.[26] At first, one could think of a Greek origin, since *hydrargyron* is also composed of the same semantic elements *hydōr* "water" and *argyron* "silver". However, if a foreign origin is to be considered, the Chinese expression *shuǐyín* composed of *shuǐ* "water" and *yín* "silver" would be the more likely model. But such a graphically descriptive name could well have been coined spontaneously.

An early work on minerals, gems and perfumes, the *ʿArāyis al-ǧawāhir wa-nafāʾis al-aṭāʾib* of Abū l-Qāsim ʿAbdallāh Kāšānī, written in 1300 CE, also contains medical prescriptions. The chapter on mercury has many similarities with the description of mercury in the second book of the *Qānūn* of Ibn Sīnā, but there are also significant differences.[27] Ibn Sīnā briefly mentions that, according to Paul of Aegina, killed mercury can be used against ileus.[28] Kāšānī advises a significant alteration:[29]

> It was brought foward: If someone is affected by the disease of ileus, which is a kind of colic in which the intestines become twisted – if this person eats mercury (*agar ān kas sīmāb biḫūrad*), it will straighten his intestines (*rūdhā mustaqīm kunad*). He will recover (*šifāʾ yābad*), and no obstipation occurs (*haḍm našawad*). In that way the mercury comes through (*firū āyad*).

It seems that *sīmāb* without further specification means metallic quicksilver.

4 Syphilis

By the end of the fifteenth century, scholars had created a substantial body of medical literature in Persian. Although Arabic works were produced and used in Iran, Persian works covered most subjects in the discipline. This meant that Persian medical authors were no longer dependent on Arabic texts as their sources of information. Works on syphilis in the Islamic world are a point in

24 Storey/Blois 1927–1997, vol. 2: 220–223.
25 MS Tehran, Majlis 6114, f. 138v.
26 Sutūda 1962: 112; Minorsky 1937: 116.
27 Afšār 1966: 211–212.
28 Al-Qašš 1987 : 493. See the translation of the passage by Natalia Bachour in this volume.
29 Afšār 1966: 211.

case: Both in the Arabic and the Persian regions, syphilis was recognized as a new disease. However, the scientific investigation of syphilis in the Islamic world is first documented in a Persian text, only a few years after the outbreak of the disease. It took almost a century until Dāʾūd al-Anṭākī wrote on the subject in Arabic.[30]

4.1 Bahāʾ ad-Dawla on syphilis

The new venereal disease, which spread in a few years from Europe to the Mediterranean, the Middle East and entire Asia, was first described by the medical scholar Bahāʾ ad-Dawla in his general work on medicine, the *Ḫulāṣat at-taǧārib* ("Essence of the experiments"), which he finished in 1501 CE.[31] Bahāʾ ad-Dawla lived in the vicinity of the old city of Rayy, not far from modern Tehran. He originated from a physicians familiy in Rayy but he studied in Herat in Afghanistan under Indian medical scholars. In his *Ḫulāṣa*, he quotes classical Greek and Arabic authorities, but also several Indian ones and others. The seventh part of the work is devoted to skin diseases. It includes a chapter on syphilis, which covers four double-column pages in the recent printed edition.

In the heading of the chapter, Bahāʾ ad-Dawla calls the disease *armānī-i dāna*, the "Armenian grain". This indicates that in Central Iran the disease was believed to have come from northwest. Further, he says that in the east in Khurasan the disease was called *ābila-i Farang*, "the smallpox of the French". *Farang*, literally "French", is used as a general term for all Europeans. He also mentions the designation *ātašak*, "small fire", which later became the standard Persian name for the disease.

In the first part of the chapter, Bahāʾ ad-Dawla describes the various symptoms of the disease, different forms of it and individual cases he witnessed. He knew that the most likely way of infection was through sexual intercourse with someone already infected, but he took other ways into account as well. He describes the variable course of disease, sometimes lasting several years and in some cases leading to death. After some recommendations concerning diet, he delineates more specific therapeutic methods: inunction, scarification, and the burning of the leaves of myrtle, tamarisk, sandalwood and asafoetida. After these external methods of application, Bahāʾ ad-Dawla next turns to the

30 Serjeant 1965; Spies 1968; See also the contribution of Natalia Bachour in this volume.
31 Elgood 1938; Storey/Blois 1927–1997, vol. 2: 230–231; Šams Ardakānī 2012 gives a Persian edition of the first part of the work; Elgood 1931 gives an English translation of the chapter as quoted by ʿImād ad-Dīn in his *Risāla-i ātašak*.

ingestion of pills, listing their ingredients and indications. The sequence of recipes and the logic of prescriptions seems to follow a strategy of using more and more heavy artillery against the disease. At the end, Bahāʾ ad-Dawla discloses the medicine he regarded as the most powerful and the one he personally trusted most: the *maʿǧūn-i sīmāb*, the "electuary of mercury".[32] Unfortunately, a recipe for this electuary is not provided. However, the entire chapter is quoted in ʿImād ad-Dīn's monograph *Risāla-i ātašak* (see below) and there, the full recipe is given.[33] The components were ten dirhams of mercury, five dirhams of a substance called "potent powder", which consisted of cinnamon, fennel and lentiscus, and finally two dirhams each of henna, pepper and ginger. In preparation, the mercury is "killed" by mixing it with the other ingredients. Finally, it is mixed with honey and the syrup of lemons. The dose is the size of a pea. ʿImād ad-Dīn remarks that this pill was well known in Constantinople, Europe, India and elsewhere.[34] The high quantity of mercury in the medicine is notable. In later recipes, the amount of mercury tends to be much lower. Moreover, Bahāʾ ad-Dawla shows no awareness of the toxicity of mercury.

4.2 Yūsufī on syphilis

Some years later,[35] Yūsuf Ibn Muḥammad Ibn Yūsuf, called Yūsufī, published his short *Ǧāmiʿ al-fawāʾid* ("Collection of useful [notes]"), which contains a chapter on therapies for syphilis.[36] Yūsufī lived in the first half of the sixteenth century in Eastern Iran and India. He was born at Khvaf, a town south of Mashhad and west of Herat.[37] He was known both as a poet and as a physician. He emigrated to India and had connections to the Mughal emperors Bābur (1483–1530 CE) and Humayūn (1508–1556 CE). His literary works are dated between 1507 and 1539, but the year of his death is not known. The *Ǧāmiʿ al-fawāʾid*, one of his early works, contains notes on therapies for diseases in prose as well as summarizing *rubāʿiyyāt* ("quatrains"). It describes five treatments for syphilis, four of them based on mercury: A mercury pill, mercury powder, mercury vapour and mercury cerecloth. The first and second mercury

32 Šams Ardakānī 2012: 300.
33 Elgood 1931: 484.
34 Elgood 1931: 484.
35 According to most MSS, the work was finished in 917/1511. Some MSS indicate dates some years earlier, see Storey/Blois 1927–1997, vol. 2: 237.
36 Storey/Blois 1927–1997, vol. 2: 237.
37 Storey/Blois 1927–1997, vol. 2: 235.

therapies are similar to each other. In both cases, the mercury has to be killed, and the medicine must be swallowed. In the passage on mercury vapour, Yūsufī explicitly refers to the dangers of mercury. He describes means for preventing damage to the brain and the eyes, and lays out a therapy for mercury poisoning. Since there is no complete translation of the chapter into a European language,[38] an English translation is provided in the appendix. The significance of the text lies in the fact that it is the earliest Persian work in which mercury plays an unmistakenly dominant role in the treatment of syphilis. It remains an open question if this is due to foreign influence. Mercury was the primary substance used in early European prescriptions in the treatment of syphilis.[39] Based on some Arabic predecessors, mercury ointment was developed by European practitioners in the fourteenth and fifteenth centuries as a medicine against skin diseases.[40] A further parallel with European prescriptions lies in the composition of Yūsufī's purgative, which contains fumitory and senna.[41] However, the internal use of mercury, as proposed by Yūsufī, seems not to have occurred in early European prescriptions, but it was common in Indian medicine.[42]

4.3 ʿImād ad-Dīn Šīrāzī on syphilis

The first Persian book devoted entirely to the disease of syphilis was written by ʿImād ad-Dīn Šīrāzī in 1569 CE.[43] ʿImād ad-Dīn served at the court of the Safavid ruler Shah Tahmasp. Later in his life he was sent to Mashhad, the great center of pilgrimage in Eastern Iran. There, he wrote his monograph *Risāla-i ātašak*, the "Epistle of the little fire", i.e. syphilis.[44] ʿImād ad-Dīn mentions European scholars in his book and it is not impossible that he had some knowledge of

38 There are Turkish and Urdu translations. Short passages are translated in Lichtwardt 1934 and Elgood 1951: 379.

39 Sudhoff 1912: 61–116.

40 Sudhoff 1912: 117–136.

41 See the translation and notes in the appendix for Yūsufī's purgative, and Sudhoff 1912: 61–116 for European prescriptions.

42 See the contribution of Dagmar Wujastyk in this volume and Wujastyk 2013.

43 Storey/Blois 1927–1997, vol. 2: 241–243; Elgood 1931.

44 There is no edition of the Persian text. An English translation is given in Elgood 1931. The Persian text is based on MS Tehran Majlis 6307. The genre of monographs on individual diseases was well-established in Arabic medical literature. For example, Muḥammad Ibn Zakariyyāʾ ar-Rāzī wrote a monograph "On smallpox and measles" in about 900 CE, which became famous and was translated into Latin several times. See Ullmann 1970: 133.

European treatises on syphilis.[45] There is no dedication in his book. The reason for writing it may well have been the particular situation in Mashhad. Prostitution was legalized in Shiʿite law in the form of temporal marriage, and Mashhad was notorious for high promiscuity, as is still the case today.[46] Conditions for the propagation of venereal diseases must have been particularly favourable at the time of ʿImād ad-Dīn. However, he does not mention anything about this in his book. ʿImād ad-Dīn also wrote other monographs, for example, one on the "Chinese herb", one on opium and one on the bezoar stone.[47]

At the beginning of the *Risāla-i ātašak*, ʿImād ad-Dīn insists that the disease did not exist in former times.[48] He mentions Bahāʾ ad-Dawla's work and announces that he will incorporate it at the end of his book. He goes on to criticize ad-Dawla and other authors who – in his opinion – were not able to deal with the subject appropriately. Next, he describes the forms of syphilis, its pathology, symptoms, causes and treatment. He explains that the name *ābila-i farang* "European smallpox" is due to the European origin of the disease, while the name "Armenian sore" derives from it having first appeared there on Iranian territory. A series of fourteen recipes follows, which seems to form a catalogue of known medicines for treating syphilis. Some of them are explicitly declared as being of European origin. Some he asserts to be his own accomplishment. The most striking feature in this list of recipes is the high number of substances and the great variety in composition. All the more astonishing is the fact that the only substance common to all medicines is mercury. In one case it occurs as "killed mercury",[49] in all other cases as simple mercury. The quantities are not indicated in all prescriptions. However, in the manuscript Tehran Majlis 6307, the quantities are written as numbers between the lines, and some may easily have been lost in the process of copying. The amount of mercury is much lower than the one found in Bahāʾ ad-Dawla's recipes, but they are still high in comparison to later prescriptions.

5 Outlook

Further work is needed to understand the use of mercury and the development of antisyphilitic therapies in Persian medicine. The two works examined by

45 Elgood 1931: 484.
46 On the spread of sexually transmitted diseases in Iran see Alaei/Alaei 2006.
47 Storey/Blois 1927–1997, vol. 2: 242–243.
48 Elgood 1931: 466.
49 Elgood 1931: 484.

Elgood are clearly important sources for the study of antisyphilitic medicine in Persian medicine: The existence of late manuscripts indicate that they were studied in the following centuries and some manuscripts contain commentaries in the margins, which points to a continued interest in their contents.[50] However, the study of Persian responses to syphilis should not be limited to these texts, as further important works were written on the subject that have not yet been analysed. One of the important developments in Persian medicine in later periods was the translation of Latin iatrochemical texts into Persian and the integration of Paracelsianism into Persian medicine. For example, the *Chymia Basilica* by Oswaldus Crollius, which was translated into Arabic in the seventeenth century,[51] was translated once more from the Arabic into Persian in the eighteenth century.[52] There are many *terrae incognitae* in the history of Persian medicine. The entanglements between Persian and European medicine, and Paracelsianism in particular, would be a promising subject for further study.

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50 MS Tehran Majlis 4547.

51 Bachour 2012; Crollius 1609.

52 Storey/Blois 1927–1997, vol. 2: 252–253.

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Appendix I: Translation of the passage on mercury therapy for syphilis in the Ğāmiʿ al-Fawāʾid

The *Ğāmiʿ al-fawāʾid* ("Collection of notices"), also known as *Ṭibb-i Yūsufī* by Yūsuf Ibn Muḥammad Ibn Yūsuf was written in 1511 according to some manuscripts, or even some years earlier according to other manuscripts. The work is extant in a great number of manuscripts, more than a hundred in Iranian

libraries alone.[53] A supposed autograph copy is kept in the Bodleian Library at Oxford.[54] The oldest dated manuscript (1561 CE) is preserved in Leipzig.[55]

The following translation is based on the text in Appendix II, which is based on a printed edition and three MSS.[56] Important changes from the text in the printed edition are indicated in the footnotes of the translation. A full critical apparatus is found at the end of Appendix II.

The chapter on syphilis (*ābala-yi farang* "European small-pox") starts with the symptoms of the disease, namely eruptions at the limbs of the body (*ǧūšiš-i aʿḍāʾ*) and pain in the joints (*dard-i bandhā*). These are summarized in a first quatrain.[57] Next, a first treatment with a purgative is proposed. After a second quatrain, the composition of the purgative is described. The ingredients include agarikon (*ġārīqūn*),[58] violet (*bunafša*),[59] senna (*sanā-yi makkī*),[60] gourd (*safǧ*),[61] black nightshade (*ʿinab-i thaʿlab*),[62] southern maidenhair fern (*parsiyāvushān*),[63] fumitory (*šāhtarra*),[64] water lily (*nīlūfar*),[65] sebesten

53 Dirāyatī 2010, vol. 3: 573–576.

54 Sachau/Ethé 1889 : 960.

55 Fleischer/Delitzsch 1985 [1838] 511–512; I thank Dr. Boris Liebrenz for his help to obtain a scan of the manuscript and Prof. Dr. Thomas Fuchs for permission to publish three pages in this article.

56 Ḫayrandīš 2010; I thank PD Dr. Tobias Nünlist for his help in difficult passages in the text.

57 Ḫayrandīš 2010: 77.

58 Steingass 1892: 878 "*ghāriqūn* (G. ἀγαρικὸν [!]), Agaricum". Zahedi 1959: 12, no. 47: *agaricus campestris*. The Ancient Greek name *agarikon* was used for many species of mushrooms. Today *agaricus* is a genus with over 300 species, including the field mushroom (*agaricus campestris*), and the common mushroom (*agaricus bisporus*), which has a potential medicinal value. However, the description by Dioscorides points to *Fomes officinalis* Faull., see Dietrich 1988, vol. 2: 343.

59 Steingass 1892: 203 "*bunafsha, binafsha, banafsha*, Violet, violet-colour; a certain aquatic plant". Zahedi 1959: 191, no. 1045: "*viola odorata*." Evans 2009: 33, 493 "Violet Leaf *viola odorata* L. is an expectorant."

60 Steingass 1892: 699 "*sanāʾī makkī*, Senna of Mecca (considered the best)." Zahedi 1959: 52 no. 275 "*sanāʾ makkī cassia* acutifolia = *senna acutifolia*."

61 Steingass 1892: 684 "*safj* [...] An unripe pumkin or gourd". For the family of *cucurbitaceae* see Evans 2009: 33.

62 Steingass 1892: "s.v. thaʿlab: Salep, and root of Orchis mascula". Zahedi 1959: 170 no. 930 "*solanum niger*." Bachour 2012: 453 "solanum". Shehada 2013: 443, n. 161 gives as reference "Ibn al-Bayṭār, *Kāshif* II, 131"; Varisco 2009: 405, n. 109: "solanum nigrum." See also the description in Evans 2009: 38.

63 Steingass 1892: 243 "*parsiyāvushān*, Maiden's hair". Zahedi 1959: 34, no.172 "*asplenium trichomanes*". Muʿīn 1992 [1963–1968], vol. 1: 743: "*adiantum capillus-veneris*". See also the description in Evans 2009: 22.

64 Steingass 1892: 727 "*shāhtarra* [...], Fumitory." Zahedi 1959: 88, no. 479 "šahtarağ fumaria officinalis". On *fumaria officinalis* L. as a choleretic, see Evans 2009: 383.

65 Steingass 1892: 1444 "*nīlufar*, The water-lily"; Bachour 2012: 454 "nymphaea"; Dietrich 1988: 2: 286 "In Betracht kommen 1. Nymphaea alba L. und Var., Weiße Seerose, Nymphaeaceae, 2.

(*sipistān*),[66] and purslane (*tuḫma-yi rayḥān*).[67] Prescriptions that are all based on mercury follow. These are translated in the following.

Translation

Once more in regard to the cure of the European small-pox (*ābala-yi farang*):

> On averting the European [disease] – may it be a dervish or a king –,
> according to the account of the well-disposed servant:
> Either he should consume the mercury pill, or the powder,
> or the vapour extracted from mercury – to put it briefly.

Description of the mercury pill (*ḥabb-i sīmāb*)

Pepper (*filfil*): four *miṯqāl*[68]; black myrobalan (*halīla-i siyāh*)[69]: three *miṯqāl*, ground and sifted (*kufta* wa *bīatau*; mercury (*sīmāb)*: seven *miṯqāl*; white sugar (*qand-i safīd)*[70]: fifteen *miṯqāl*; finest flour (*ārd-i mayda*)[71] and butter (*rawġan-i gāw*)[72]: six *miṯqāl* each. One mixes everything together, and one kneads it until the mercury is killed (*kušta*).[73] Afterwards one forms

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Nuphar lutea L. und Var., Gelbe Teichrose, Nymphaeaceae." On *nymphaeaceaae* and their medicinal value, see Evans 2009: 27.

66 Steingass 1892: 652 "*sipistān*, Sebestens". On the family of the *boraginaceae*, to which sebestens (*cordia myxa* and *cordia latifolia*) belong, see Evans 2009: 37.

67 Steingass 1892: 288 "*tukhmi raiḥān*, Purslain".

68 During the 16th century, *miṯqāl* as a weight of goods was about 4.6 g in Iran, see Hinz 1955: 6.

69 Read *halīla-yi siyāh* according to MS instead of *halīla-i zangī* in the edition Ḫayrandīš 2010: 77 l. 21. In regard to the identification of *halīla-i siyāh*, see Steingass 1892: 1507s.v. "*halīla*: *halīla-yi* siyāh = black myrobalan"; Muʿīn 1992, vol. 4: 5165: "*halīla = terminalia chebula*". For a description of the black myrobalan, see Evans 2009: 232.

70 Read *qand-i safīd* according to MS instead of *qand-i siyāh* "black sugar" in the edition.

71 Read *ārd-i mayda* according to MSS instead of *ārd-i damīda* "blown flour" in the edition. Steingass 1892: 1360 "*maida* the finest flour".

72 Steingass 1892: 595 "*raughan* oil, butter, clarified butter, ghee, fat, grease"; Steingass 1892: 1072 "*gāu, gāo, gāv* bull, bullock, cow"; Dihḫudā 1946–1975: fsc. 144: 179 "*ravġan-i gāv: rawġan-ī ki az šīr-i gāv bi dast āyad*" ("*rawġan-i gāv* a greasy substance (*rawġan*) which is made from cow milk"). Based on the last explanation it is more likely that a milk product is meant, than a lard product.

73 Parallels to the expression *sīmāb kušta* "killed mercury": Afšār/Fragner 2009: 98 f. 49V *zībaq-i kušta* "killed mercury". Steingass 1892: 717 explains: "*sīmāb kušta* quicksilver reduced to ashes, condensed quicksilver with which to coat a mirror".

fourteen portions, and each day one swallows (*firū-barand*) two portions, made into balls (*ġulūla karda*), one portion in the morning and one portion at the end of the day, and one must cover oneself to keep moderately warm (*ḫūd-rā i ʿtidāl bipūrsand*),[74] until, after recovery, one eats rice pudding (*shīr-biriṅğ*)[75] without salt,[76] with finely ground white sugar (*qand-i safīd-i sūda*), or[77] with finely ground rock sugar (*nabāt-i sūda*) and leavened bread (*nān-i māya-dār*) without salt and [boiled] leg of lamb or kid (*pāča-i barra yā buz-ġāla*)[78] without salt.

Description of the mercury powder (*safūf*)[79]

Skin of Ethiopian myrobalan (*halīla-i zangī*),[80] skin of yellow myrobalan (*pūst-i halīla-yi zard*),[81] skin of chebulic myrobalan (*pūst-i halīla-i kābulī*),[82] skin of myrobalan, and pepper: two *miṯqāl* each, ground and sifted; mercury: seven *miṯqāl*; sugar: sixteen *miṯqāl*; One mixes everything together and kneads it (*kaff māl kunand*)[83] until the mercury is killed. Afterwards, one forms fourteen parts, and each day one beats two parts into crumbs (*kaffa, kafa*), which means: one part in the morning and one part at the end of the day; and, after that, one must drink some rose-water, and one must cover oneself to keep moderately warm, until at a time when recovering takes place, one eats the mentioned food.

74 For *iʿtidāl* in the sense of mean temperature see Qusṭā Ibn Lūqā 1992: 22 l. 47.
75 Steingass 1892: 773 "*shīr-birinj* = milk dressed with rice". For a further description of preparation: Muʿīn 1992, vol. 2: 2105.
76 The expression *bī namak* "without salt" is found in the MSS, but missing in the edition.
77 Read *yā* according to the MSS instead of *bā* in the edition.
78 Steingass 1892: 228 "*pācha*, Feet (of sheep, calves, or other animals, especially when boiled)"; Steingass 1892: 183 "*buz-ghāla* (pl. *buzghālagān*), A kid; a calf".
79 Steingass 1975 [1892]: 685 "*safūf*, (A medicine) taken simply (not mixed, in opposition to an electuary); powder." The second definition seems to apply to the text in question, since the described medicine is mixed.
80 This expression could not be found in the used reference works.
81 Steingass 1892: 1507 "*halīla'i zard*, Yellow myrobalans".
82 Steingass 1892: 1507 "*halīla'i kābulī*, Chebulic myrobalans".
83 The expression *kaff-i māl kardan* is explained by Dihḫudā 1946–1975, fsc. 180: 4 as "*dar kaff-i dast mālīdan tā narm wa rīza šūd*" ("to knead by the palm of the hand until it is smooth and finegrained.").

Description of how to make quicksilver (*jīva*) vapour

This means mercury (*sīmāb*): One makes six *miṯqāl* into six portions, and each day puts one portion into an iron vessel and makes vapour underneath the garment. One covers it in the right way. After making vapour, one must wrap a piece of fine linen around the collar and the neck, so that it won't rise from the collar to the nose and won't cause harm to the visual faculty. And if one eats the quantity of a pea of white or red cooked mercury in betel-leaf[84] for three consecutive days of the week, or one mixes [it?], macerated with three *dāng*[85] of ground cinnamon in sugar syrup, forms it into a ball and swallows it, and if one does this consistently, then all sores are removed (? *hamdar āward*) and all pains of the limbs are pushed away – with the allowance of God – he is exalted.

If the visual faculty has been weakened through the vapour of mercury, one makes litharge (*iqlīmiyā-yi zar*),[86] and grinds and sifts and crushes it. Every morning, one applies ointment on the eye at will, until it has consumed the vapour of mercury and and has absorbed it and the eye has returned to the original state. This treatment is also a speciality of the author of the book and is tested.

Also on the treatment of the Frankish pustule:

About the pain of your Frankish [pustules], o sufferer!
I will say a word, take it to heart,
As the expert has success (*muwāfiq uftad*),
Your cerate (*qayrūtī*)[87] of mercury [has success], as you wish it.[88]

Cerate of mercury

Half a *miṯqāl* of wax in two, three *miṯqāl* of butter and five *miṯqāl* of melted goat kidney fat, which one has washed three [times] in water, six *miṯqāl* of mercury, four *miṯqāl* of ground henna to add visibility (? *iḍāfa namūda*): One

84 Read *ba-barg-i tanbūl* according to the MSS, instead of *barg-i tanbūl* in the edition.
85 A *dāng* was generally one sixth of a *miṯqāl*, see Hinz 1955: 11.
86 Dihḫudā 1946–1975, fsc. 147: 3170.
87 The word *qayrūtī/qīrūtī* is derived from Greek *kērōtē* "wax cloth", which designates an ointment containing wax, used in Greek medicine.
88 The sense of this word seems to be: "Your cerate of mercury will be as successful as if it were made by an expert, and it will be effective according to your wishes".

kneads it until the mercury is killed. Further, one makes three portions, one for each day. After that, one applies it down to the thighs (*rān narasānand*), behind the ear, under the armpit and on the inner thighs. One must cover oneself to keep moderately warm, until at a time when recovery takes place, one eats the mentioned food. If an eruption of the mouth gives trouble, in order to quiet the pain, one cooks water of marshmallow (*ḫaṭamī*),[89] or of [other] mallows, or violet at the beginning of a few days [in order to produce] a medicine, and, having purified it, one uses it to rinse the mouth from time to time. Once salivation (*luʿāb raftan-i dahān*) has finished, one sprinkles ground and sifted whitish purslane (? *ḫurfa-i tabāšīr*),[90] and also sumach (*sumāq*) equally[91] onto the place of the eruption. If the syphilitic sore has become chronic, one removes it with a poultice of an unguent in the morning and in the evening.

89 Zahedi 1959: 19, no. 84 "*althea officinalis*".

90 Persian *tabāšīr* ("Sugar of bamboo; chalk, clay, paster; whiteness") is a loanword from Sanskit *tvakṣīra*; cf. Steingass 1892: 278.

91 Read *bi-ăs-sawiyya* according to the MS L, instead of *bāzwiyya* in the edition.

Appendix II: Edition of the Persian text of the notes on syphilis therapy in the Ǧāmiʿ al-fawāʾid

Figure 2: MS Leipzig B. Or. 250 f. 1v (by courtesy of Universitätsbibliothek Leipzig).

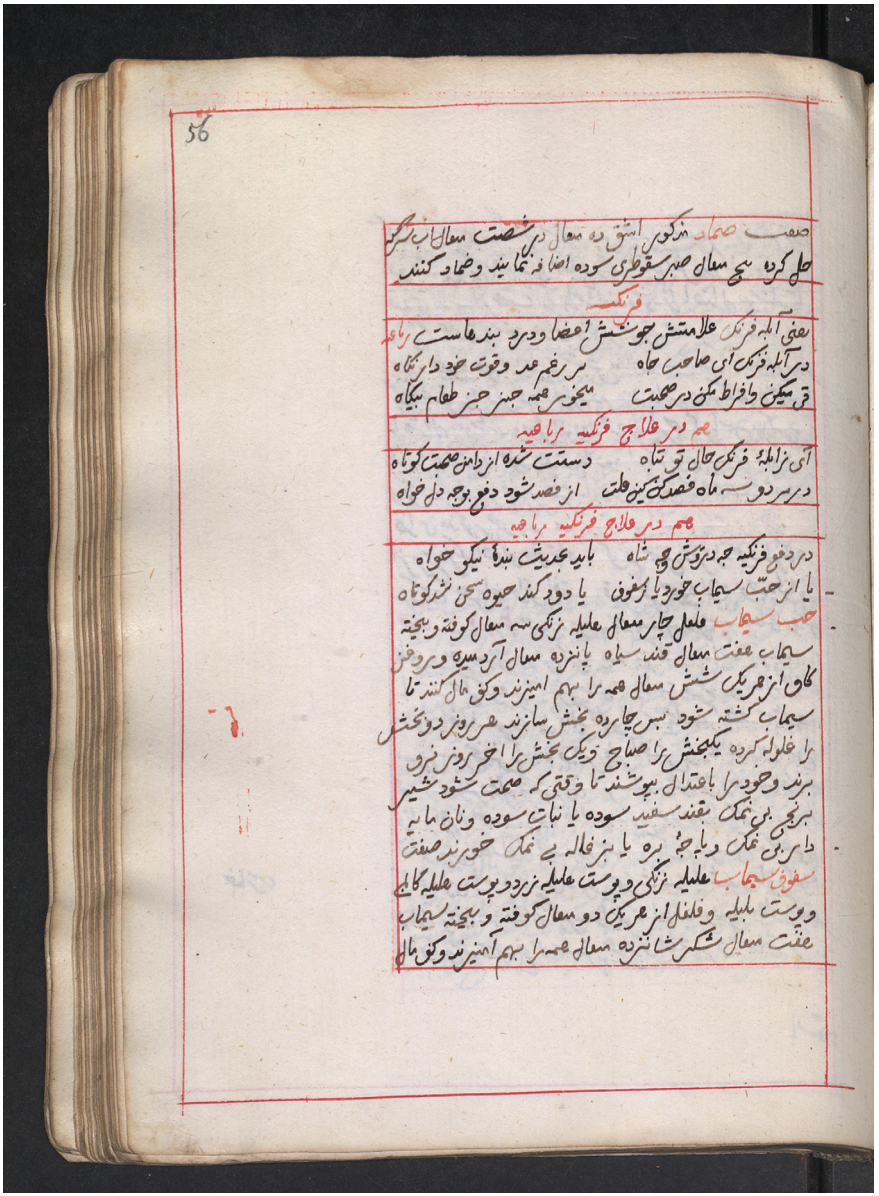

Figure 3: MS Leipzig B. Or. 250 f. 56r (by courtesy of Universitätsbibliothek Leipzig).

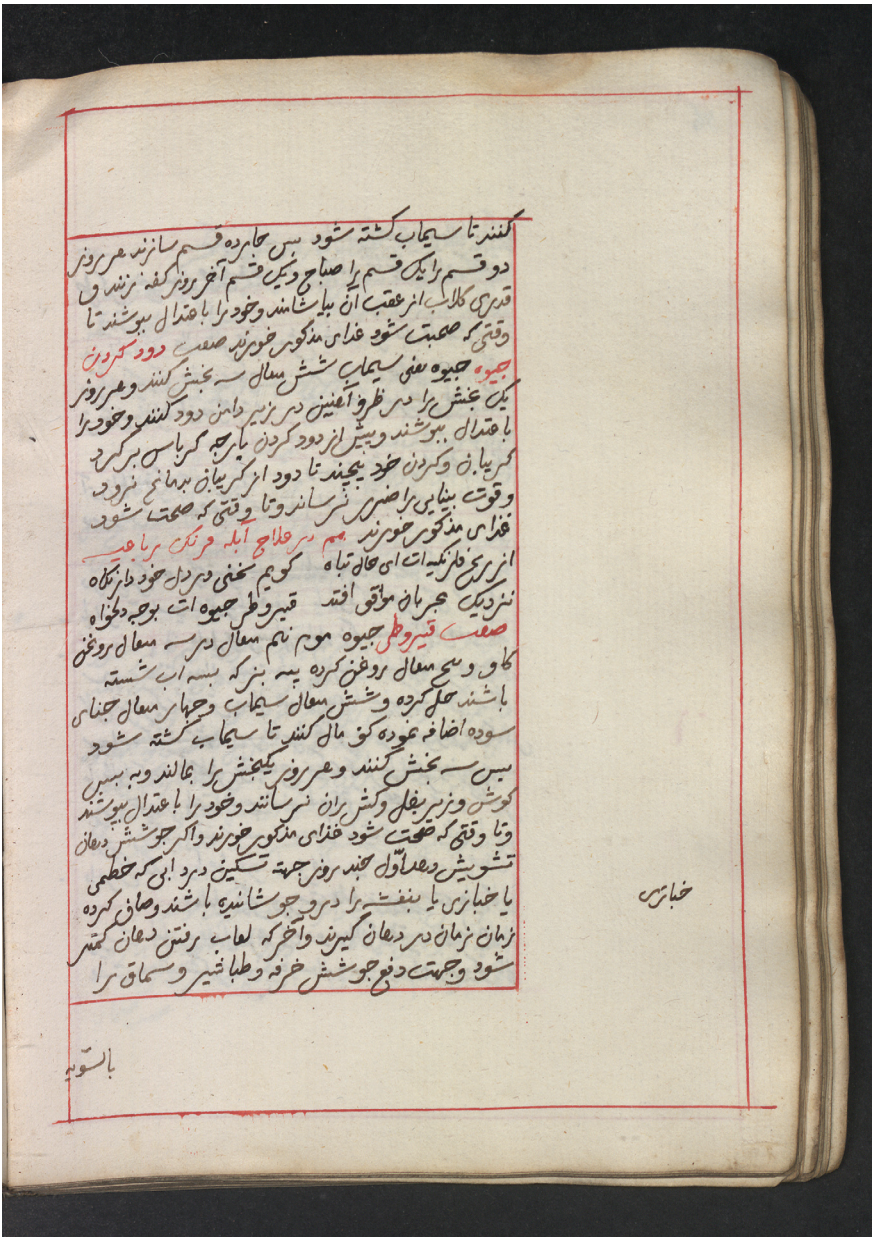

Figure 4: MS Leipzig B. Or. 250 f. 56v (by courtesy of Universitätsbibliothek Leipzig).

Three easily accessible manuscripts have been used to establish the text:

L Leipzig, Universitätsbibliothek, Cod. B. or. 205.

The manuscript seems to have been planned as a comprehensive collection of Persian medical texts, but at some point the scribe did not continue his work and a great number of pages were left blank. On f. 62v a colophon is found:

> The book has been finished with the help of the Bestower at the third [day] of Shawwāl, ordered in the series of months, in the year nine hundred sixty eight[92]

The date in the colophon (3 Shawwāl 968) corresponds to June 17, 1561 CE. The next page (f. 63r) is blank, and on the following page (63v) a medical text in a different hand and with a different page layout is found. After two blank pages, ten pages with red margins and blind lining identical to the margins and lining in the first part but without text follow. On four pages marginal notes of a later hand are found. It seems that the first scribe left the remaining 122 pages blank. Later, another scribe used the final part of the codex to insert four Persian treatises on coffee, tea, the bezoar-stone and China root. In the colophon the date 29 Ḏū l-Ḥiğğa 1049 (April 21, 1639 CE) and the place Constantinople is indicated. The scribe calls himself Muḥammad Šafiʿ Ibn Maḥmūd al-Ḫayābadī[93] from the region of Ḫurāsān. It appears likely that he brought the codex from Khurasan to Istanbul and used the pages left blank by the first scribe for his own purposes.

M Tehran, Majlis Library, No. 16218.

The manuscript is incomplete at the end, and therefore it has no colophon in its present state. The authors of the manuscript catalogue estimate its date is the "10th century" (which corresponds to 1494 to 1591 CE).[94] There are many marginal notes in the manuscript in smaller and more cursive script. They could have been written by the same scribe as the main text. Nevertheless, they are represented by $\mathbf{M^2}$ in the critical apparatus in order to distinguish them from the main text (**M**). The notes were copied from a model and controlled as the mark *ṣḥ* (for *ṣaḥḥ* "correct") at the end of many of them indicates. They might have been derived from an autograph, but this is not sure. In later copies, these marginal notes became part of the main text.

T Tehran, Majlis Library, shelf-mark: ۱۵۲۲۹۶R۱۲۸/۶,/۱۲۴۷ ۲ط ۹ی

92 Arabic text: *tamma l-kitābu bi-ʿawni al-Wahhābi fī ṭāliṭi Šawwāl al-munaẓẓami fī silki šuhūrin sanata ṭamānin wa-sittīna wa-tisʿimiʾati*.

93 The reading is not certain in regard to the short vowels. No place name similar to Ḫayābad could be found.

94 Dāniš Pažūh et al. 1995–2011, vol. 45: 90.

In the online catalogue, the book is described as a lithography. However, in the reproduction it looks like an original manuscript. There is a colophon on the last folio, which indicates that the copy (*nusḫa*) was made by ʿAbd al-Muṭṭalib al-Kāsānī in the year 1285 (1868 CE).

q Edition Qum 2010

The edition of Ḥusayn Ḫayrandīš seems to have been based on a lithography printed in Kāmpūr in the year 1886 CE.[95] There are no indications that other sources were used to establish the text.

A great number of other manuscripts exist in European, Turkish, Iranian and other libraries which would have to be consulted for a future critical edition. Here, the oldest dated manuscript **L** is chosen as the *Leithandschrift* and the other manuscripts are used to document phases of transmission towards the *textus receptus* as represented in **q**. Luckily the manuscript **M** represents a transitional phase in which marginal notes contain texts which later were incorporated into the main text (**T** and **q**). There are seventy variant readings in which the printed edition diverges from the common reading in the MSS, but there are only few variant readings in which the MSS disagree among each other. This has to be taken as a severe warning against the unconcerned use of uncritical editions.

The text generally follows the manuscript **L**, but occasionally diacritical points and marks distiguishing *gāf* from *kāf* are added in order to enhance readability. Words which are red in the manuscript are shown in italics. Additions in the marginal notes of **M** and incorporated in the main text in **T** and **q** are shown in smaller script.

فرنگیه
یعنی آبله فرنگ علامتش جوشش اعضا ودرد بندهاست، *ریاعیه*
در آبله فرنگ ای صاحب جاه بر رغم عد و قوت خود دار نگاه
قی میکن وافراط مکن در صحبت میخور همه چیز جز طعام بیگاه

[5] *هم در علاج فرنگیه، ریاعیه*
آی ز ابلهٔ فرنگ حال تو تباه دستت شده از دامن صحبت کوتاه
در هر دو سه ماه فصد کن کین علت از فصد شود دفع بوجه دل خواه

وبعد از فصد ونضج مواد مسهلی دهند که مخرج اخلاط
ثلثه باشد صفت مهل مذکور غاریقون به موئینه پیز
گذرانیده یك مثقال ایارج فیقرا دو دانگ بهم آمیخته

95 See Ḫayrandīš 2010: 114, where the text of the original colophon is copied without comments. A copy of the lithography is kept in the Majlis Library at Tehran (shelfmark: ۱۴۰۶۱۰۲).

به شربت بنفشه سرشته حبها سازند و به شربت مذکور
[5′]غلطا یند و سحر فرو برند و چون بعمل در آید و طبیعت

سه چهار مرتبه اجابت کند سنا مکی خاسه پنج مثقال بسفایج
نیم کوفته و عنب الثعلب از هر یك سه مثقال
گل سرخ و پر سیاوشان
و شاه ترج
[10′] از هر یك دو مثقال گل نیلوفر
دریایی یك مثقال سپستان سی عدد
اجزاء را در یك کاسه آب بجوشانند تا نیمه
کمتر بماند صاف کنند و پنج مثقال شیر خشت
در آب آن حل کرده و باز صاف نموده نیم گرم
[15′] بیاشامند و چون عمل دارو آخر شود شربت
از قند از گلاب و قند و تخم ریحان رغبت نمایند و غذا نخود آب کنند [و] خورند

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در دفع فرنگیه چه درویش و چه شاه باید بحدیث بندهٔ نیکو خواه
[10] یا از حبّ سیماب خورد یا ز سفوف یا دود کند جیوه سخن شد کوتاه

حب سیماب فلفل چهار مثقال هلیله زنگی سه مثقال کوفته و بیخته
سیماب هفت مثقال قند سیاه پانزده مثقال آرد میده و روغن
گاو از هر یك شش مثقال همه را بهم آمیزند وکف مال کنند تا
سیماب کشته شود پس چارده بخش سازند هر روز دو بخش
[15] را غلوله کرده یك بخش را صباح و یك بخش را آخر روز فرو
برند وخود را به اعتدال بپوشند تا وقتی که صحت شود شیر
برنج بی نمك به قند سفید سوده یا نبات سوده ونان مایه
دار بی نمك و پاچهٔ بره یا بزغاله بي نمك خورند صفت
سفوف سیماب هلیله زنگی و پوست هلیله زرد و پوست هلیله کابلی
[20] و پوست بلیله وفلفل از هر یك دو مثقال کوفته و بیخته سیماب
هفت مثقال شکر شانزده مثقال همه را بهم آمیزند و کف مال
/56v/
کنند تا سیماب کشته شود پس چارده قسم سازند هر روز
دو قسم را یك قسم را صباح و یك قسم آخر روز کفه زنند و
[25] قدري گلاب از عقب آن بیاشامند وخود را به اعتدال بپوشند تا
وقتی که صحت شود غذای مذکور خورند صفت *دود کردن*
جیوه، جیوه یعنی سیماب شش مثقال سه بخش کنند و هر روز
یك بخش را در ظرف آهنین در زیر دامن دود کنند وخود را
به اعتدال بپوشند و پیش از دود کردن پارچه کرباس برگرد
[30] گریبان وگردن خود بپیچند تا دود از گریبان به دماغ نرود
و قوت بینایی را ضرر نرساند و تا وقتی که صحت شود
غذای مذکور خورند

و اگر در هفته سه روز پی در پی مقدار ماش
از سیماب پخته سفید یا سرخ یا به برگ تنبول خورند
یا صلایه کرده به سه دانگ دارچینی سوده به شیره قند
سرشته آمیزند و حب کرده فرو برند و بدین مداومت
[5′′] نمایند هم جراحت آبله را درهم آورد و هم
درد اعضا را دفع کند به اذن الله تعالی و اگر قوت
باصره بواسطه بخار سیماب ضعیف شود
اقلیمیای زر که کوفته و بیخته و صلایه کرده باشند
هر صباح بمیل طلا در چشم کشند تا بخار سیماب را
[10′′] بخورد و جذب کند و باصره بحال اصلی باز آید
و این علاج نیز خاصه مؤلف است صح

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[35] از رنج فرنگیه ات ای حال تباه گویم سخني در دل خود دار نکاه
نزدیك مجربان موافق افتد قیروطی جیوه ات بوجه دلخواه

صفت قیروطی جیوه موم نیم مثقال در سه مثقال روغن
گاو و پنج مثقال روغن کرده پیه بز که به رسه آب شسته
باشند حل کرده و شش مثقال سیماب و چهار مثقال جنای
[45] سوده اضافه نموده کف مال کنند تا سیماب کشته شود
پس سه بخش کنند و هر روز یك بخش را بمالند وبه پس
گوش و زیر بغل وکش ران نرسانند وخود را باعتدال بپوشند
و تا وقی که صحت شود غذای مذکور خورند واگر جوشش دهان
تشویش دهد اوّل چند روز جهت تسکین درد آبی که خطمی
[45] یا خبازی یا بنفشه را درو جوشانیده باشند وصاف کرده
زمان زمان در دهان گیرند و آخر که لعاب رفتن دهان کمتر
شود و جهت دفع جوشش خرفه و طباشیر و سماق را
\57r\
بالسویّه کوفته و بیخته موضع جوشش یاشند واگر جراحت آبله
مزمن باشد وهم نوره را صباح وشام گذارند صفت
[45] مرهم نوره

صحبت 4 || **q** عدو **L M T,** | **T q** زعم **L M,** رغم 3 || **T** نقطه فرنگیه **L T q,** فرنگیه 1 [**L M T q**] در هر دو سه 7 || **M T q** صحت **L,** صحبت | **q** آبله فرنگ **L M T,** فرنگیه رباعیه 6 || **q** صحتت**, L M T** به حسب **L M T,** بوجه | **q** وز هر سه دو **L M T,** **q.**

[**M² T q**] 1′ – 2′ ... مذکور وبعد **M² T,** صفت مسهلی که اخراج اخلاط ثلثه کند || **q** ایارج 3′ **M² T,** دو | **q** ایاره **M² T,** در دو **q** | هرشته 4′ **M² T,** بسرشند **q** | حبها سازند و بشربت **M² T,** دوا به عمل **M² T,** غلطانند **q** | غلطاینده 5′ **M² T,** کرده در شربت و غلولها **q** || مرتبه 6′ **q** اجزا 12′ **M² T,** نیلوفر **q** || گل نیلوفر 10′ **M² T,** شانتره **q** || شاهترج 8′ **M² T,** نوبت **q** | یازده **M² T,** پنج **q** | آید **M² T,** بماند 13′ **q** || چون از **M² T,** تا | q جوسانند **M² T,** به جوشانند | **q** همه

آب, **M² T** نخود آب | **q** فرمایند, **M² T** نمایند | **q** قند, **M² T** از قند ′16 || **q** صاف, **M² T** باز صاف ′14 || **q** به عمل آرند خورند و اگر حاجت باز داعی شود مسهلی را دوباره, **M² T** خورند | **q** نخود.

[**L M T q**] 8 فرنگیه رباعیه **L M T,** فرنگ آبله **q** || و چه 9 **L M T,** چه **q** || 12 سیاه **L T q,** سفید **M** | **M T** غلولها **L q,** غلوله 15 || **q** و هر **L M T,** هر 14 || **M** با هم **L T q,** بهم 13 || **q** دمیده **L M T,** میده **L** سفید | **q** برنج **L M T,** برنج بي نمك 17 || **T** پیدا شود غذا **L M q,** شود | **T** بپوشد **L M q,** بپوشند 16 || پوست **L M T,** هلیله 19 || **T** و **L M q,** یا 18 || **M** مایده **L T q,** مایه | **q** با **L M T,** یا | **q** سپید **M T,** چهاده **M,** چاده **L,** چارده 22 || **T** آمیخته **L M q,** آمیزند 21 || **q** هلیله **L M T,** بلیله 20 || **q** هلیله **T,** 26 || **q** قسم را **M** قسم را در **L T,** قسم | **q** یعني **L M T,** را 23 || **T** سازده **L M q,** سازند | **q** چهارده **L M** آهنین 28 || **q** مثقال را **L M T,** مثقال | **q** یعني **L M T,** جیوه یعنی 27 || **q** صحت **L M T,** صحبت **L M T,** و تا 31 || **q** بپیجند **T,** پجیده **M,** پحند **L,** پیجند 30 || **q** تاحچه **L M T,** پارجه 29 || **q** آهني کرده **T,** غذا **L M T,** غذای 32 || **q** تا **q**.

[**M² T q**] به | **q** سپید **M² T** سفید ″2 || **q** متعاقب هر روز **M² T,** روز پی در پی | **q** اگر **M² T,** و اگر ″1 **q** شده باشد **M² T** شود ″6 || **q** آرد **M² T** آورد ″5 || **q** غلوله **M² T** حب ″4 || **q** برگ **T,** ببرگ **M²,** برگ || **q** بیخته **M² T** و بیخته | **q** در **M² T** در که | **q** اقلیمي **M² T** اقلیمیات ″8 || **q** شده باشد **M² T** شود ″7 **q**. مجرب شده و **M²,** صح ″11 || **q** مؤلف کتاب **M² T** مؤلف | **q** بخورد **M² T** بخود ″10

[**L M T q**] سه **L M T,** دو سه 32 || **q** گرده پیه **L M q,** پیه گرده **T** || 43 و تا **L M,** تا **T** q || 45 درو **L** جوشش پاشند **M T q** || 47 و جهت **M T** در آن **q,** و سماق | **q** خرفه **T,** خرفه تخم و **L M,** خرفه و | **q** جهت **L M T,** باسویه | **q** موضع **L M T,** در موضع | **q** جوپا شند **L,** بالسویّه 48 || **q** سماق **M T q** صبح **L,** صباح | **q** مرهم **L M T,** وهم | **M T q** شده باشد **L,** باشد 49 ||.